



InGaP HBT 2.4~2.5 GHz High Power Amplifier

Description

The RS1213D is a high power amplifier (PA) optimized for 802.11b/g/n (WLAN) applications in the 2.4-2.5GHz frequency range. The PA is implemented as a three-stage monolithic microwave integrated circuit (MMIC) with active DC bias, on-chip input matching and output pre-matching.

In 802.11g mode (OFDM 64QAM, 54Mbps), it is capable to provide a low EVM (Error-Vector magnitude) of 3% at **26.8dBm** and 23.5dBm linear output power by single supply voltage 5V and 3.3V, respectively. The compact footprint, low profile and excellent thermal capability make the RS1213D an ideal solution for IEEE 802.11b/g/n applications.

Applications


- WLAN (IEEE 802.11b/g/n)

Package

- QFN 3mm x 3mm 16 Lead Package

Key Features

- **Advanced InGaP HBT**
- **Excellent RF Stability with Moderate Gain:**
 - Typically 32.7dB gain across 2.4 – 2.5 GHz
- **High Linear Output Power:**
 - **26.8dBm** @3% EVM/5V 54Mbps 64QAM 11g
 - 23.5dBm @3% EVM/3.3V 54Mbps 64QAM 11g
- **Low Current Consumption:**
 - 230mA Quiescent Current @5V
 - 360mA Icc @ 26dBm 54Mbps 64QAM 11g
- **High Power-added Efficiency**
 - ~25% Efficiency @ 26.8dBm/5V for 54Mbps 64QAM 802.11g signal
- **Optional 26dB Attenuation**
- **High-speed Power-up/-down**
 - Turn on/off time (10%- 90%) <150 ns
- **High Temperature Stability**
 - 2 dB gain variation between 0°C to +85°C
- **Simplified Off-Chip Matching (only one inductance compared to RTC6649)**
- **Simple output match for optimal EVM**
- **Excellent On-chip Power Detection**
 - <+/- 0.3dB variation between 0°C to +85°C
 - <+/- 0.4dB variation with 2:1 VSWR mismatch
- **All Non-Pb (lead-free) Devices are Ro-HS Compliant**

3 x3mm MLP PACKAGE		PACKAGE ORDER INFO	
		Plastic MLPQ	
		16 pin	
		RoHS Compliant/Pb-free	
		RS1213D	



Pin Descriptions

Symbol	Pin No.	Type ¹	Function
RFIN	2,3	I	RF input into the power amplifier. This pin is RF-matched to 50 Ohm, and shorted to ground at DC.
VCB	5	PWR	Supply voltage for the bias reference and control circuits.
V _{B12}	6	PWR	Bias current control voltage for the first & second stage.
V _{B3}	7	PWR	Bias current control voltage for the third stage.
RFOUT	10,11	O	RF output and power supply for the third stage amplifier.
VC3	12	PWR	Power supply for the third stage amplifier.
VC2	14	PWR	Power supply for the second stage amplifier.
VC1	16	PWR	Power supply for the first stage amplifier.
DET	9	PWR	DETECTOR output.
GND	Center Metal	GND	The center metal base of the MLP package provides both DC and RF ground as well as heat sink for the power amplifier.
NC	1,4,8,13,15		These pins are unused and not connected to the device inside the package. They can be treated either as open pins, or connected for ground for better heat dissipation

Note: I=Input, O=Output,

Pin Assignments

